

**Work Order ID 104954**

July-23-13 12:57:33 PM

**\*104954\***

Page 1

Item ID: D3017-11

Accept

**\*N900040100\***

Setup

Start

**\*NS1\***

Revision ID:

Item Name: cap

Stop

**\*NS2\***

Start Date: 7/23/13 Start Qty: 12.00

**\*12\***

Cust Item ID:

Required Date: 7/23/13 Req'd Qty: 12.00

**\*12\***

Customer:

Reference:

Approvals: Process Plan: ML5 Date: 13-07-25 Tooling:  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_Date: \_\_\_\_\_  
Date: \_\_\_\_\_Run Start **\*NR1\***  
Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3017	Rev B								
100		0.00							
<b>*100*</b> Waterjet	FLOW WATER JET								
FLOW CNC Waterjet	Memo	0.00							
<i>4/30 N, 049</i>	1-Cut as per Dwg D3017 Dwg Rev: <u>B</u> Prog Rev: <u>B</u>								
	2-Deburr if necessary								
110	QC2- Inspect parts off machine FAI/FAIB	0.00							
<b>*110*</b> QC	Memo	0.00							
Quality Control									

50 0 Jm 3-08-1450 0 Jm 3-08-14

NCR: Yes / No

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____	DISPOSITION			AGAINST DEPARTMENT/PROCESS				
Part No. _____	Rework <input type="checkbox"/>	Scrap <input type="checkbox"/>	Use-as-is <input type="checkbox"/>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	
NCR No. _____	Work Order Update <input type="checkbox"/>	Machining <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Finishing <input type="checkbox"/>	Prod. Eng. Coor. <input type="checkbox"/>	Quality <input type="checkbox"/>	
		Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Supplier <input type="checkbox"/>	Other <input type="checkbox"/>	Other <input type="checkbox"/>	

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Setup									
Other									
Process									
Supplier									
Training									
Unapproved									

## FAULT CATEGORY

Landing Gear		General									
Bending	<input type="checkbox"/>	Bend	<input type="checkbox"/>	Grain	<input type="checkbox"/>	Ovalized	<input type="checkbox"/>	Pressure/Forced			
Centre Not Concentric to O/S	<input type="checkbox"/>	BOM/Route	<input type="checkbox"/>	Hardware	<input type="checkbox"/>	Over/Under tolerance	<input type="checkbox"/>	Temperature/Cure			
Cracks	<input type="checkbox"/>	Broken/Damaged	<input type="checkbox"/>	Inspection Incomplete	<input type="checkbox"/>	Part Incorrect	<input type="checkbox"/>	Weld			
Crushed/Crimped	<input type="checkbox"/>	Burrs	<input type="checkbox"/>	Instructions Incomplete/Unclear	<input type="checkbox"/>	Part Lost/Missing	<input type="checkbox"/>	Wrong Stock Pulled			
Cuffs	<input type="checkbox"/>	Contamination	<input type="checkbox"/>	Maintenance	<input type="checkbox"/>	Part Moved	<input type="checkbox"/>				
Heat Treat	<input type="checkbox"/>	Countersink	<input type="checkbox"/>	Mislabeled	<input type="checkbox"/>	Positioned Wrong	<input type="checkbox"/>				
Inspection Strip in Tube	<input type="checkbox"/>	Cut Too Short	<input type="checkbox"/>	Misread	<input type="checkbox"/>	Power Loss/Surge	<input type="checkbox"/>				
Ripples in Bend	<input type="checkbox"/>	Drill Holes	<input type="checkbox"/>	Offset	<input type="checkbox"/>	Other	<input type="checkbox"/>				
Torque Waves in Extrusion	<input type="checkbox"/>	Drawing	<input type="checkbox"/>	Out of Calibration	<input type="checkbox"/>		<input type="checkbox"/>				
Turning Sequence	<input type="checkbox"/>	Finish	<input type="checkbox"/>	Out of Sequence	<input type="checkbox"/>		<input type="checkbox"/>				
Wave/Twist in Tube	<input type="checkbox"/>	Folio	<input type="checkbox"/>	Outside Dimensions	<input type="checkbox"/>		<input type="checkbox"/>				



NCR: Yes / No

DQA: Date:

## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION		AGAINST DEPARTMENT/PROCESS						
				Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/>	Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/>	Water Jet <input type="checkbox"/> Prod. Eng. Coor. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/>	Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/>				
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance		Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data												
Equip/Tooling												
Operator												
Material												
Setup												
Other												
Process												
Supplier												
Training												
Unapproved												
FAULT CATEGORY												
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube				General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions				<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Other	

**Picklist Print**

July-23-13 12:57:33 PM

Page 1

Work Order ID: 104954

Parent Item: D3017-11

Parent Item Name: cap

Start Date: 7/23/13

Required Date: 7/23/13

Start Qty: 12.00

Required Qty: 12.00

Comments: IPP Rev:A 08-04-14 now on water jet DD verified by:EC  
verified by:JLM

IPP RevB: as per revB DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M4130NS.049 4130 Sheet .049		Purchased	No			100	sf	127.7903	0.004	0.050526 1.0		JM 3-08-14	

Location	Loc Qty	Loc Code
MAT020	127.790263	
11612	4.2	
123049	17.340263	
124283	106.25	124283

NCR: Yes / No

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

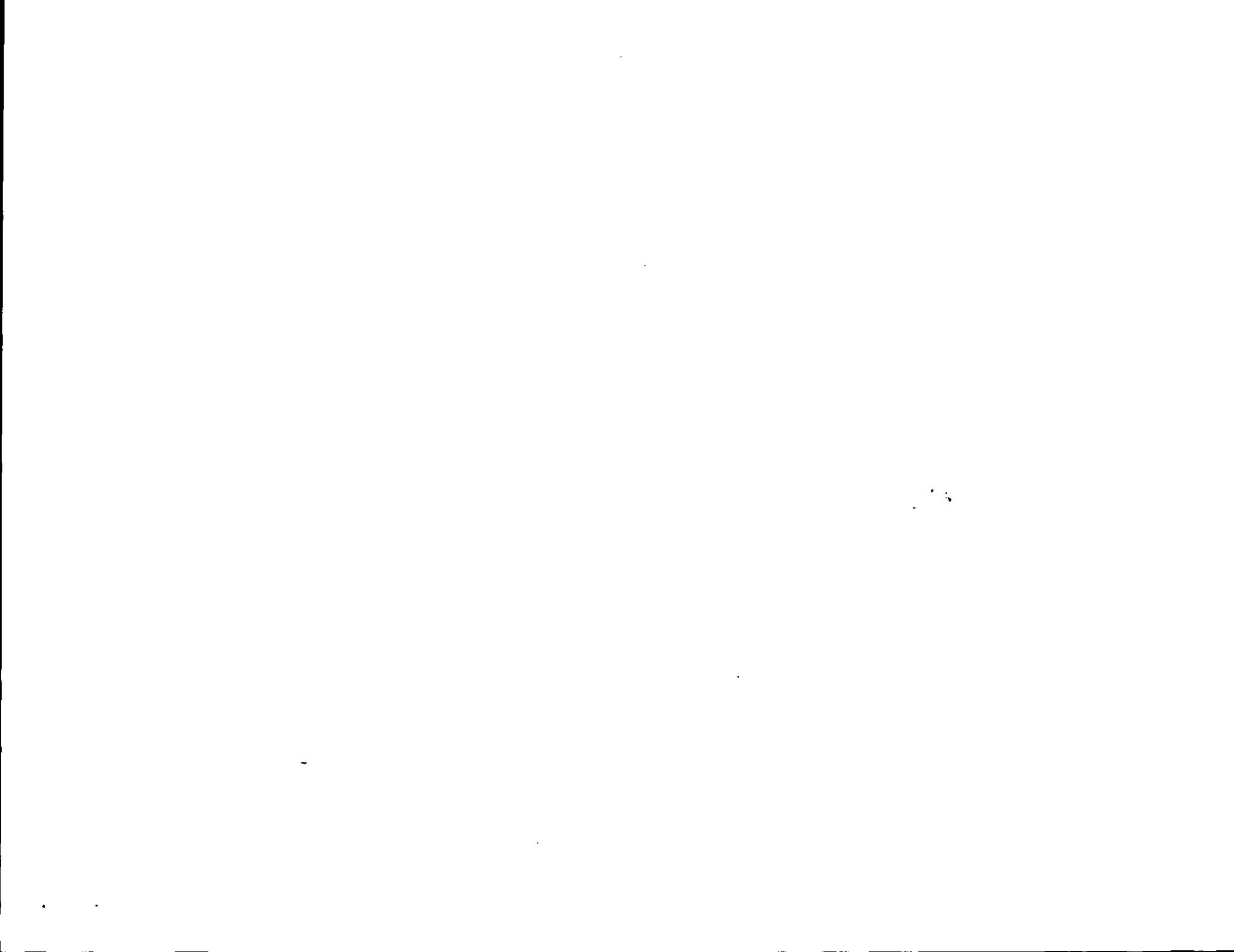
Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION		AGAINST DEPARTMENT/PROCESS								
				Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/>	Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/>	Water Jet <input type="checkbox"/> Prod. Eng. Coor. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/>	Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/>						
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance		Initial Chief Eng	Action Description		Sign & Date	Verification	QC Inspector			
Doc/Data														
Equip/Tooling														
Operator														
Material														
Setup														
Other														
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Supplier														
Training														
Unapproved														
FAULT CATEGORY														
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube				General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio		<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions						<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge	<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled	<input type="checkbox"/> Other

DART AEROSPACE LTD	Work Order:	104954
Description: End Cap	Part Number:	D3017-11
Inspection Dwg: D3017	Rev: B	Page 1 of 1

## FIRST ARTICLE INSPECTION CHECKLIST

Measured by:	Jm	Audited by:		Preliminary Approval:	
Date:	13-08-14	Date:	13.8.14	Date:	

Rev	Date	Change	Revised by	Approved
A	08.10.09	New Issue	KJ/DD	
B	12.10.04	Dwg Rev updated	KJ	



ITEM No.	NUMBER	REV.
1	X D3017-041	BACK FRAME ASSEMBLY
2	1 D3017-1	TUBE
3	1 D3017-3	TUBE
4	1 D3017-5	TUBE
5	3 D3017-7	LUG
6	2 D3017-11	END CAP

DRILL Ø0.128 HOLES TO LINE UP  
WITH D3023-1 BACK PANEL

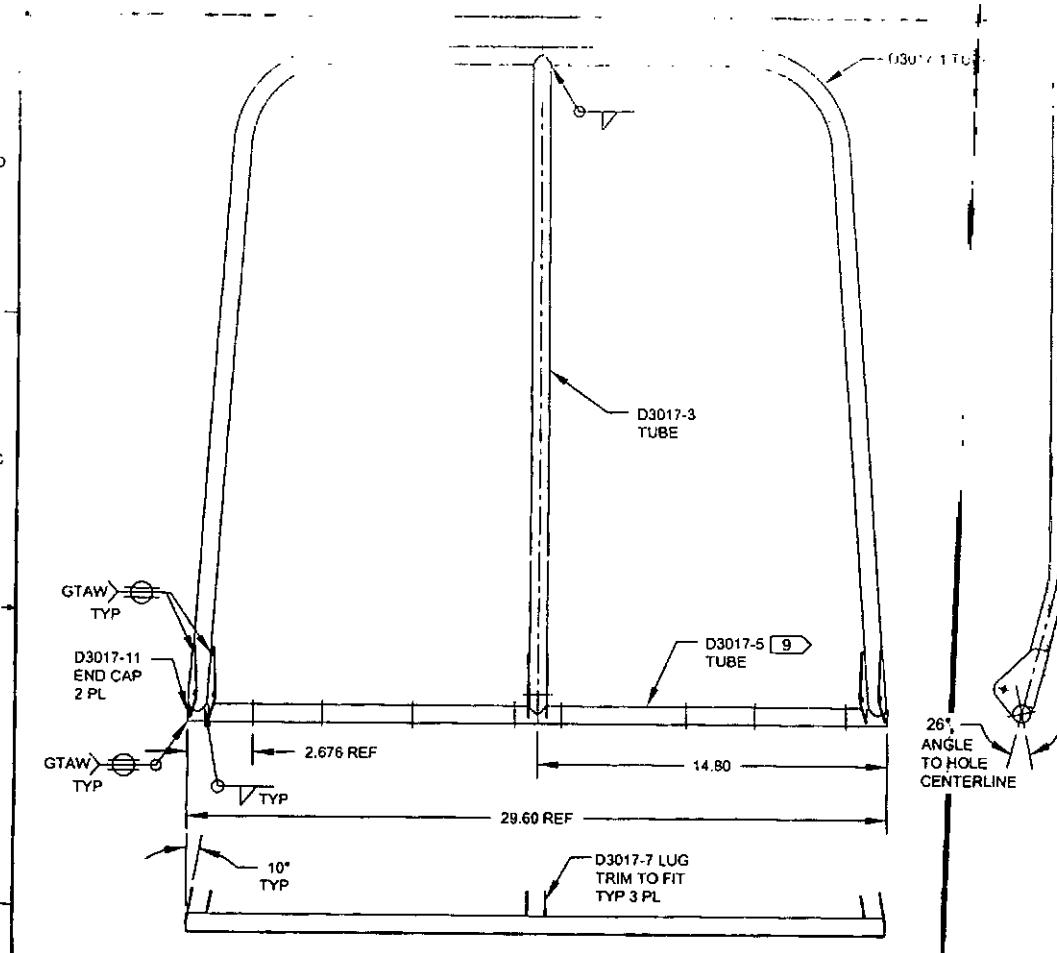
104954 MCL  
13-07-25

RELEASED  
2010-02-02  
MF

B	REFORMAT DWG. -5 TUBE WALL THKNS REV'D (A8-3) SHEET 3 & 4 ADDED TO CLARIFY DRAWING. RADIUS CHANGED FROM R4.00 TO R3.75 (B4-2, B2-2). HOLE SIZE CHANGED FROM Ø0.191 TO Ø0.257 (C8-3, C3-3)	JPH	10.01.13
A	NEW ISSUE	CP	01.05.16
REV.	DESCRIPTION	BY	DATE
DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. B
MFG. APPR.		D3017	SHEET 1 OF 4
APPROVED		TITLE	SCALE
DE APPR.		BACK FRAME ASSEMBLY	NTS
DATE	10.01.13	COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY OTHER PURPOSE THAN THE ONE FOR WHICH IT WAS DESIGNATED WITHOUT PRIOR WRITTEN APPROVAL FROM DART AEROSPACE LTD.	

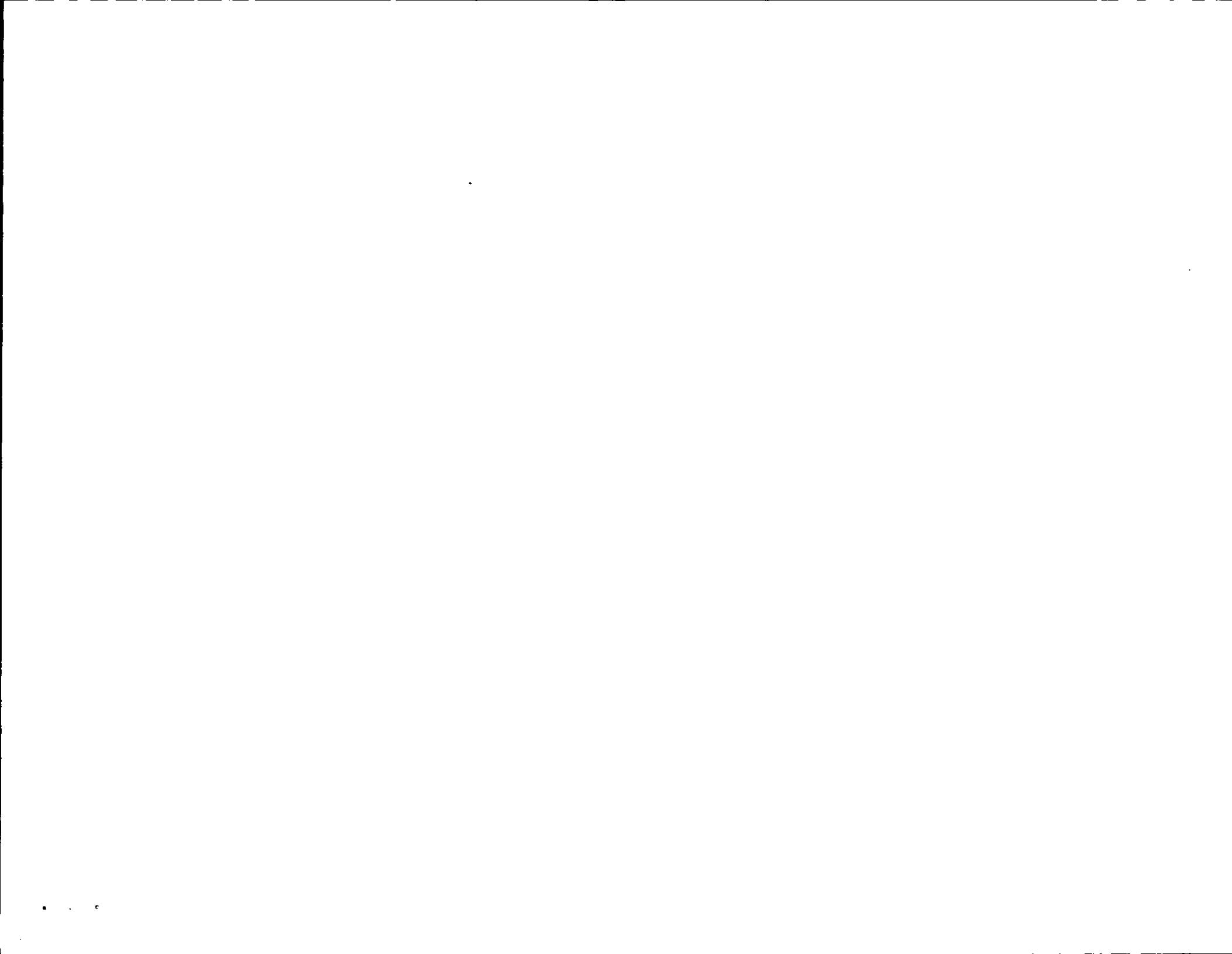
NOTES:  
1) MATERIAL: N/A  
2) FINISH: POWDER COAT GREY SANTEX (4.3.5.6) PER DART QSI 005 4.3  
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED  
4) UNITS: INCHES UNLESS OTHERWISE NOTED  
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX  
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3017-041" USING FINE POINT PERMANENT INK MARKER  
7) WEIGHT: 4.50 lbs  
8) WELD PER DART QSI 004  
9) ROTATE SO THAT PILOT HOLES ARE ANGLED AS SHOWN IN END VIEW.

**D3017-041 BACK FRAME ASSEMBLY**

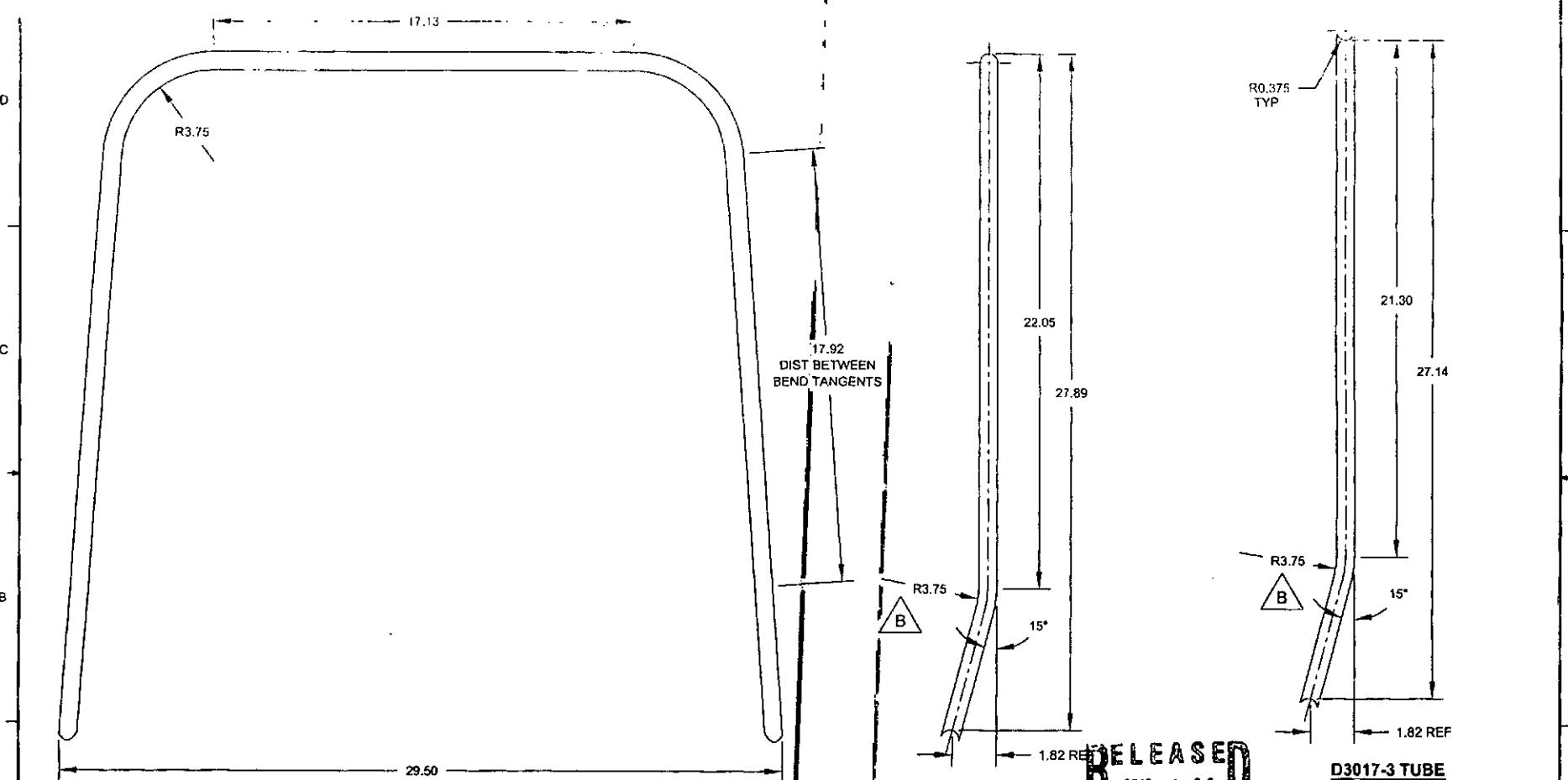


8 7 6 5 4 3 2 1

A



104954

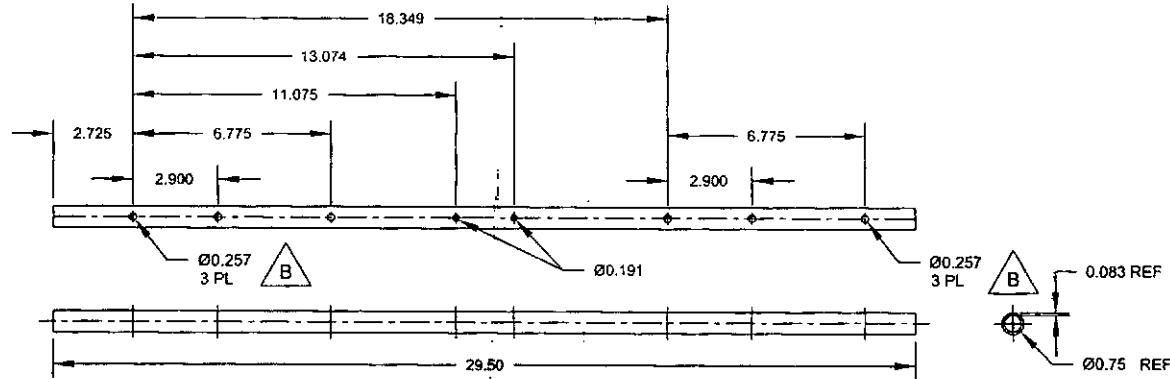
**NOTES:**

- 1) MATERIAL: AISI 4130N TUBE, Ø0.75 DIA x 0.049 WALL (M4130N-T0750W049)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D3017-1: 2.38 lbs; D3017-3: 0.84 lbs.

DESIGN		DART AEROSPACE LTD
DRAWN		HAWKESBURY, ONTARIO, CANADA
CHECKED		DRAWING NO. REV. B
MFG. APPR.		D3017 SHEET 2 OF 4
APPROVED		TITLE SCALE
DE APPR.		BACK FRAME ASSEMBLY NTS
DATE	10.01.13	COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS THE PROPERTY OF DART AEROSPACE LTD. IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD



104954

D3017-5 TUBE

RELEASED  
2010-07-02  
MP

NOTES:  
 1) MATERIAL: AISI 4130N TUBE, Ø0.75 DIA x 0.083 WALL (M4130N-T0750W083)  
 2) FINISH: NONE  
 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED  
 4) UNITS: INCHES UNLESS OTHERWISE NOTED  
 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX  
 6) IDENTIFICATION: NONE  
 7) WEIGHT: 0.89 lbs



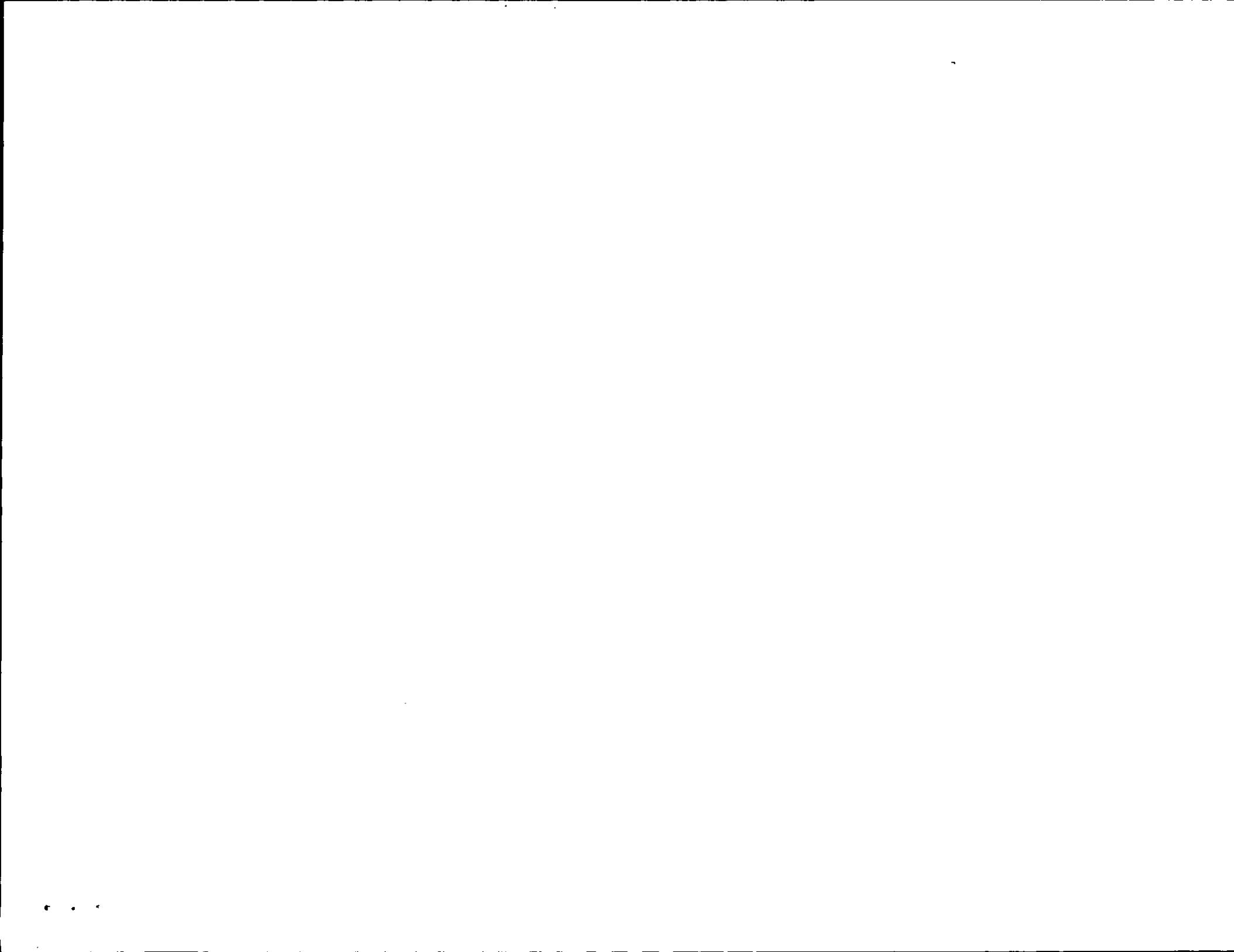
8 7 6 5 4 3 2 1

DESIGN		DART AEROSPACE LTD
DRAWN		HAWKESBURY, ONTARIO, CANADA
CHECKED		REV. B
MFG. APPR.		D3017 SHEET 3 OF 4
APPROVED		TITLE
DE APPR.		SCALE
DATE	10.01.13	NTS

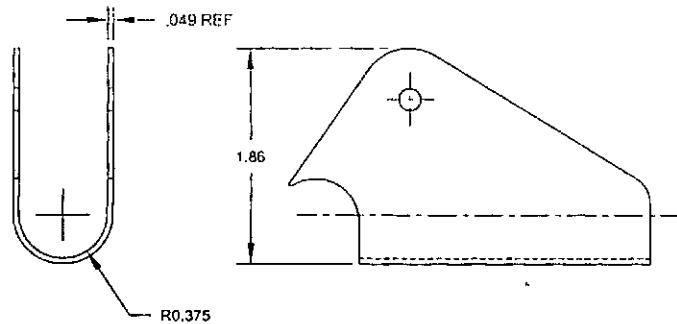
BACK FRAME ASSEMBLY

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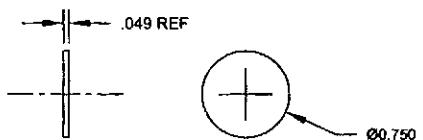
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1041954

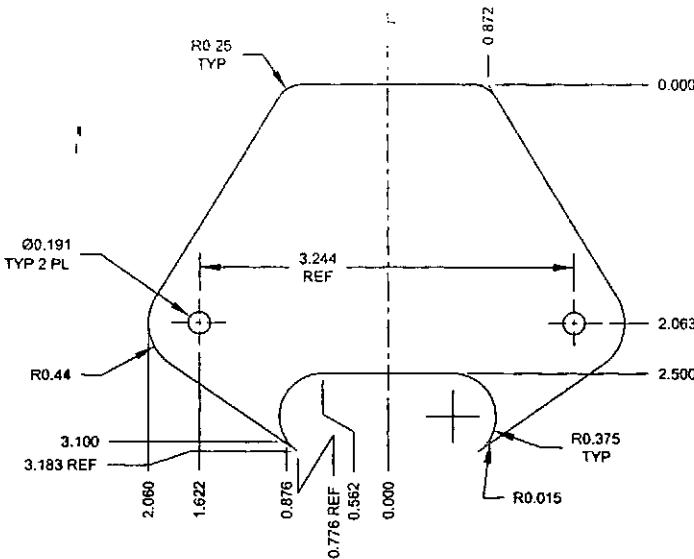


**D3017-7 LUG**  
**BENDING DETAIL**  
**MAKE FROM D3017-7F**



D3017-11 END CAP

**NOTES:**  
1) MATERIAL: AISI 4130N SHEET, 18 GAUGE (M4130N-S049)  
2) FINISH: NONE  
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED  
4) UNITS: INCHES UNLESS OTHERWISE NOTED  
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX  
6) IDENTIFICATION: NONE  
7) WEIGHT: -7: 0.12 lbs; -11: 0.01 lbs.



**D3017-7F FLAT PATTERN**

RELEASED 2010-02-02  
M

DESIGN	<u>8</u>	DART AEROSPACE LTD		
DRAWN	<u>8</u>	HAWKESBURY, ONTARIO, CANADA		
CHECKED	<u>40</u>	DRAWING NO.	, REV. B	
MFG. APPR.	<u>16</u>	D3017	SHEET 4 OF 4	
APPROVED	<u>1</u>	TITLE	i SCALE	
DE APPR.	<u>1</u>	BACK FRAME ASSEMBLY	INTS	
DATE	10.01.13		COPYRIGHT © 2001 BY DART AEROSPACE LTD THE DOCUMENT CONTAINS TRADE SECRET INFORMATION WHICH IS THE PROPERTY OF DART AEROSPACE LTD. IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT THE WRITTEN CONSENT OF DART AEROSPACE LTD.	

